

We Claim:

1. A biodegradable and/or bioabsorbable fibrous article formed by electrospinning fibers of biodegradable and/or bioabsorbable fiberizable material comprising a composite of different biodegradable and/or bioabsorbable fibers.
- 5        2. A fibrous article according to claim 1, wherein said composite of different fibers is defined by fibers of different diameters.
3. A fibrous article according to claim 2, wherein said fibers of different diameters include fibers having diameters less than 1 micron and fibers having diameters greater than 1 micron.
- 10       4. A fibrous article according to claim 3, wherein said fibrous article comprises at least about 20 weight percent of submicron diameter fibers.
5. A fibrous article according to claim 4, wherein said fibrous article comprises at least about 50 weight percent of submicron diameter fibers.
- 15       6. A fibrous article according to claim 1, wherein said composite of different fibers is defined by fibers of different biodegradable and/or bioabsorbable materials.
7. A fibrous article according to claim 1, wherein said composite of different fibers is defined by fibers of different diameters and different biodegradable and/or bioabsorbable materials.
- 20       8. A fibrous article according to claim 1, wherein said biodegradable and/or bioabsorbable fiberizable material comprises a biodegradable and/or bioabsorbable polymer.
- 25       9. A fibrous article according to claim 8, wherein said biodegradable and/or bioabsorbable polymer comprises a monomer selected from the group consisting of a glycolide, lactide, dioxanone, caprolactone, trimethylene carbonate, ethylene glycol and lysine.

10. A fibrous article according to claim 8, wherein said biodegradable and/or bioabsorbable polymer comprises a biodegradable and/or bioabsorbable linear aliphatic polyester.

5 11. A fibrous article according to claim 10, wherein said biodegradable and/or bioabsorbable linear aliphatic polyester is a polyglycolide or a copolymer poly(glycolide-co-lactide).

12. A fibrous article according to claim 1, wherein said biodegradable and/or bioabsorbable fiberizable material comprises a material derived from biological tissue.

10 13. A fibrous article according to claim 1, wherein said fibers have diameters in the range from about 10 up to about 1,000 nanometers.

14. A fibrous article according to claim 13, wherein said fibers have diameters in the range from about 20 to about 500 nanometers.

15 15. A fibrous article according to claim 1, further comprising small blobs of biodegradable and/or bioabsorbable material.

16. A fibrous article according to claim 1, further comprising at least one medicinal agent.

17. A fibrous article according to claim 16, wherein said medicinal agent is contained within said fibers.

20 18. A fibrous article according to claim 17, further comprising fibers with different concentrations of said medicinal agent.

19. A fibrous article according to claim 17, further comprising fibers with different medicinal agents.

25 20. A fibrous article according to claim 1, further comprising a plurality of layers, wherein at least one of the layers comprises a composite of different biodegradable and/or bioabsorbable fibers.

21. A fibrous article according to claim 20, further comprising at least one medicinal agent between at least two of said layers.

22. A fibrous article according to claim 1, wherein said fibrous article has a controlled degradation rate.

5 23. A fibrous article according to claim 1, wherein said fibrous article is a membrane.

24. A fibrous article according to claim 23, wherein said membrane has a thickness in the range of about 10 to about 5000 microns.

10 25. A fibrous article according to claim 24, wherein said membrane has a thickness in the range of about 20 to about 1000 microns.

26. A biodegradable and/or bioabsorbable fibrous article formed by electrospinning fibers of biodegradable and/or bioabsorbable fiberizable material comprising an asymmetric composite of different biodegradable and/or bioabsorbable fibers.

15 27. A fibrous article according to claim 26, wherein different fibers refers to fibers of different diameters.

28. A fibrous article according to claim 27, wherein said fibers of different diameters include fibers having diameters less than 1 micron and fibers having diameters greater than 1 micron.

20 29. A fibrous article according to claim 28, wherein said fibrous article comprises at least about 20 weight percent of submicron diameter fibers.

30. A fibrous article according to claim 29, wherein said fibrous article comprises at least about 50 weight percent of submicron diameter fibers.

25 31. A fibrous article according to claim 26, wherein different fibers refers to fibers of different biodegradable and/or bioabsorbable materials.

32. A fibrous article according to claim 26, wherein different fibers refers to fibers of different diameters and different biodegradable and/or bioabsorbable materials.

5 33. A fibrous article according to claim 26, wherein said biodegradable and/or bioabsorbable fiberizable material comprises a biodegradable and/or bioabsorbable polymer.

34. A fibrous article according to claim 33, wherein said biodegradable and/or bioabsorbable polymer comprises a monomer selected from the group consisting of a glycolide, lactide, dioxanone, caprolactone, trimethylene carbonate, ethylene glycol and lysine.

35. A fibrous article according to claim 33, wherein said biodegradable and/or bioabsorbable polymer comprises a biodegradable and/or bioabsorbable linear aliphatic polyester.

15 36. A fibrous article according to claim 35, wherein said biodegradable and/or bioabsorbable linear aliphatic polyester is a polyglycolide or a copolymer poly(glycolide-co-lactide).

37. A fibrous article according to claim 26, wherein said biodegradable and/or bioabsorbable fiberizable material comprises a material derived from biological tissue.

20 38. A fibrous article membrane according to claim 26, wherein said fibers have diameters in the range from about 10 up to about 1,000 nanometers.

39. A fibrous article according to claim 38, wherein said fibers have diameters in the range from about 20 to about 500 nanometers.

25 40. A fibrous article according to claim 26, further comprising small blobs of biodegradable and/or bioabsorbable material.

41. A fibrous article according to claim 26, further comprising at least one medicinal agent.
42. A fibrous article according to claim 41, wherein said medicinal agent is contained within said fibers.
- 5 43. A fibrous article according to claim 42, further comprising fibers with different concentrations of said medicinal agent.
44. A fibrous article according to claim 42, further comprising fibers with different medicinal agents.
- 10 45. A fibrous article according to claim 26, wherein said fibrous article has a controlled degradation rate.
46. A fibrous article according to claim 26, wherein said fibrous article is a membrane.
47. A fibrous article according to claim 46, wherein said membrane has a thickness in the range of about 10 to about 5000 microns.
- 15 48. A fibrous article according to claim 47, wherein said membrane has a thickness in the range of about 20 to about 1000 microns.
49. A fibrous article formed by electrospinning different fibers of different materials, comprising a composite of different fibers which comprises fibers of at least one biodegradable material and fibers of at least one non-biodegradable material.
- 20 50. A fibrous article according to claim 49, wherein said different fibers comprise submicron diameter fibers.
51. A fibrous article according to claim 49, wherein said composite is an asymmetric composite of said different fibers.
- 25 52. A method for reducing surgical adhesions which comprises positioning an adhesion-reducing barrier between the site of surgical activity and neighboring

tissue, said barrier comprising a biodegradable and/or bioabsorbable membrane,  
wherein said membrane comprises a composite or asymmetric composite of different  
biodegradable and/or bioabsorbable fibers; a plurality of layers, with at least two  
layers having different biodegradable and/or bioabsorbable fibers from each other; or  
5 sub-micron diameter biodegradable and/or bioabsorbable fibers, having at least one  
medicinal agent contained within the fibers.

53. A method according to claim 52, wherein different fibers refers to  
fibers of different diameters.

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54. A method according to claim 52, wherein different fibers refers to  
fibers of different biodegradable and/or bioabsorbable materials.

55. A method according to claim 52, wherein different fibers refers to  
15 fibers of different diameters and different biodegradable and/or bioabsorbable  
materials.

56. A method for providing controlled tissue healing which comprises  
implanting at a target site in an animal, a system for controlled tissue healing, said  
20 system comprising a biodegradable and/or bioabsorbable fibrous article, wherein said  
fibrous article comprises a composite of different biodegradable and/or bioabsorbable  
fibers or an asymmetric composite of different biodegradable and/or bioabsorbable  
fibers.

57. A method according to claim 56, wherein said fibrous article is  
25 selected from the group consisting of a scaffold for guided tissue regeneration, a  
protective covering for redirecting healing, a protective covering for weakened tissue  
and an anti-fibroblastic growth barrier.

58. A method according to claim 56, wherein different fibers refers to  
30 fibers of different diameters.

59. A method according to claim 56, wherein different fibers refers to fibers of different biodegradable and/or bioabsorbable materials.

5 60. A method according to claim 56, wherein different fibers refers to fibers of different diameters and different biodegradable and/or bioabsorbable materials.

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